

IN THE CLAIMS:

Claims 1-11 (canceled).

Claim 12 (new). In a process for the preparation of a picoline, which comprises a) contacting a mixture of a carbonyl compound, which is an aldehyde or ketone, with ammonia in the presence of a titanium-silicate catalyst in gas phase at a temperature ranging between 300-500°C, at a gas space velocity ranging between 300 to 3000h⁻¹ and at a pressure ranging between 1 to 10 atmospheres to obtain resultant products comprising the picoline, and (b) recovering the picoline in purified form, the improvement wherein the titanium-silicate catalyst has an external surface that has been selectively passivated.

Claim 13 (new). The process as claimed in claim 12, wherein the carbonyl compound is an aldehyde selected from the group consisting of formaldehyde, acetaldehyde and propionaldehyde.

Claim 14 (new). The process as claimed in claim 12, wherein the carbonyl compound is formaldehyde.

Claim 15 (new). The process as claimed in claim 12, wherein the catalyst has a molecular formula of 1 SiO₂ : x TiO₂, where x is in a range of 0.005 to 0.05, and wherein the catalyst has a crystalline structure characterized by a powder X-ray diffraction pattern as shown in

Table 1.

Claim 16 (new). The process as claimed in claim 12, wherein the catalyst comprises crystallites with a crystallite size in a range of 0.1 to 1.5 microns.

Claim 17 (new). The process as claimed in claim 12, wherein the catalyst comprises crystallites with a crystallite size in a range of 0.3 to 0.8 microns.

Claim 18 (new). The process as claimed in claim 12, wherein the external surface of the catalyst has been selectively passivated by treatment of the catalyst with silicon tetrachloride or silicon tetraalkoxide by chemical vapor deposition.

Claim 19 (new). The process as claimed in claim 18, wherein the treatment is with a silicon tetraalkoxide selected from the group consisting of silicon-tetra-methoxide, silicon-tetra-ethoxide, silicon-tetra-isopropoxide and silicon-tetra-butoxide.

Claim 20 (new). The process as claimed in claim 16, wherein the external surface of the catalyst has been selectively passivated by treatment of the catalyst with silicon tetrachloride or silicon tetraalkoxide by chemical vapor deposition.

Claim 21 (new). The process as claimed in claim 20, wherein the treatment is with a silicon tetraalkoxide selected from the group consisting of silicon-tetra-methoxide, silicon-tetra-

ethoxide, silicon-tetra-isopropoxide and silicon-tetra-butoxide.

Claim 22 (new). The process as claimed in claim 12, further comprising, after step a), loading the catalyst with a metal.

Claim 23 (new). The process as claimed in claim 22, wherein the metal is selected from the group consisting of lead, nickel, thallium and mixtures thereof.

Claim 24 (new). The process as claimed in claim 12, wherein the catalyst is prepared as a solid powder which is optionally mixed with an inert binding substance, shaped into an extrudate or pellet, and then dried and calcined or spray dried to obtain a desired particle size.

Claim 25 (new). The process as claimed in claim 24, wherein the desired particle size is in a range of 50 to 100 microns.

Claim 26 (new). The process as claimed in claim 12, wherein the catalyst is prepared by selectively passivating the external surface of a titanium-silicate catalyst A, B, C, D or E shown in Table 2.

Claim 27 (new). The process as claimed in claim 26, wherein the resultant products comprise a mixture of pyridine and the picoline, said titanium-silicate catalyst with the

external surface that has been selectively passivated providing the process with an increased yield and selectivity for the picoline as compared with the catalyst before the passivation.

Claim 28 (new). The process as claimed in claim 12, wherein the external surface of the catalyst has been selectively passivated by selective in-situ deposition of silica onto the external surface.

Claim 29 (new). In a process for the preparation of picoline, which comprises a) contacting a mixture of a carbonyl compound, which is an aldehyde or ketone, with ammonia in the presence of a titanium-silicate catalyst in gas phase at a temperature ranging between 300-500°C, at a gas space velocity ranging between 300 to 3000h⁻¹ and at a pressure ranging between 1 to 10 atmospheres to obtain resultant products comprising a mixture of the picoline and a pyridine, and (b) recovering the picoline in purified form, the improvement wherein the titanium-silicate catalyst has an external surface that has been selectively passivated such that a yield and selectivity for the picoline is higher than with the catalyst before the passivation.

Claim 30 (new). The process as claimed in claim 29, wherein the external surface of the catalyst has been selectively passivated by treatment of the catalyst with silicon tetrachloride or silicon tetraalkoxide by chemical vapor deposition.

Claim 31 (new). The process as claimed in claim 29, wherein the external surface of the catalyst has been selectively passivated by selective in-situ deposition of silica onto the external surface.